AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application. No new matters are added with the amendments presented herein. Entry and consideration of the amendments is respectfully requested.

Listing of Claims:

1. (Currently amended) A micropump, comprising a body of semiconductor material, characterized by a plurality of fluid-tight chambers, selectively openable, formed within said body and having a preset internal pressure substantially different from standard atmospheric pressure, ~~wherein at least one of the fluid-tight chambers is sealed by~~ and at least one capacitor comprising ~~at least one~~ a dielectric diaphragm ~~and said dielectric diaphragm is~~ arranged between a first electrode and a second electrode ~~to form a capacitor~~, wherein at least one of the fluid-tight chambers is sealed by the dielectric diaphragm.

2. (Previously presented) The micropump according to claim 1, characterized in that each of said fluid-tight chambers is sealed by at least one diaphragm, openable electrically.

3. (Canceled)

4. (Previously presented) The micropump according to claim 1, characterized in that said diaphragm is of silicon dioxide.

5. (Original) The micropump according to claim 4, characterized in that said diaphragm has a thickness not greater than 1 μm.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled).

10. (Previously presented) The micropump according to claim 1, characterized by a first voltage source, connectable to said first electrode of said micropump and supplying a first voltage (V1), and a second voltage source, selectively connectable to one of said second electrodes of said micropump and supplying a second voltage (V2).

11. (Canceled)

12. (Withdrawn) A process for manufacturing a vacuum micropump, comprising the steps of:

a) forming cavities in a substrate of a wafer of semiconductor material; and

b) sealing said cavities at a preset pressure.

13. (Withdrawn) The process according to claim 12, wherein said step of forming cavities comprises the steps of:

a) forming, on top of said substrate, a mask having sets of openings;

b) etching said substrate through said sets of openings;

c) coating exposed portions of said mask with a first layer of said semiconductor material; and

d) thermally oxidizing said first layer so as to close said first sets of openings.

14. (Withdrawn) The process according to claim 13, comprising the steps of:

a) growing an epitaxial layer on said mask;

b) depositing at least one conductive line on top of said epitaxial layer; and

c) etching said conductive line and said epitaxial layer until said cavities are reached.

15. (Withdrawn) The process according to claim 13, wherein said step of sealing comprises depositing a second layer of dielectric material at controlled pressure.

16. (Withdrawn) The process according to claim 15, wherein said second layer is of silicon dioxide.

17. (Withdrawn) The process according to claim 16, in which said second layer has a thickness not greater than 1 μm.

18. (Currently amended, withdrawn) A method of amplification, comprising amplifying a target nucleic acid in an integrated microfluidic reactor, wherein a fluid comprising the target nucleic acid is moved through the microfluidic reactor using the micropump of claim ~~11~~ 10.

19. (Currently amended, withdrawn) A method of biological analysis, comprising analyzing a target biological molecule in an integrated microfluidic reactor, wherein a fluid comprising the target biological molecule is moved through the microfluidic reactor using the micropump of claim ~~11~~ 10.

20. (Currently amended, withdrawn) A microfluidic device comprising:

a) a microfluidic circuit; and

b) a micropump, for moving a fluid through the microfluidic circuit, wherein the micropump comprises a body of semiconductor material, and a plurality of selectively openable fluid-tight chambers~~, selectively openable,~~ formed within said body ~~and having internally a preset pressure~~ and wherein a pressure differential is present between the fluid-tight chambers and the microfluidic circuit, wherein at least one of the fluid-tight chambers is sealed by a capacitor comprising a dielectric diaphragm arranged between a first electrode connected to a first voltage source and a second electrode connected a second voltage source.

21. (Previously presented) The micropump according to claim 1, characterized in that said chambers have a preset internal pressure substantially lower than standard atmospheric pressure.

22. (Previously presented) The micropump according to claim 21, characterized in that said chambers have a preset internal pressure of about 100 mtorr.